PO 6200
User's Manual and
Reference Guide

Figure 1-2. System Block Diagram

System Board Settings

The system board has several user-adjustable jumpers and connectors on system board that allow you to configure your system to suit your every need. This chapter contains information on the various jumper and connector settings on your system board.

Jumpers

Jumpers are used to select the operating modes for your system. Some jumpers on system board have three metal pins with each pin representing a different function. To "**set**" a jumper, a black cap containing metal contacts is placed over the jumper pin(s) according to the required configuration. A jumper is said to be "**shorted**" when the black cap has been placed on two of its pins, as shown in the figure below:
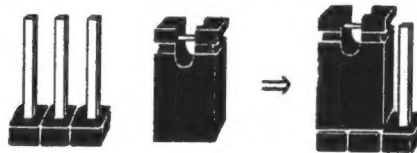

Figure 2-1. Jumper with Pins Shorted

Pin 1 of the jumpers are marked with a filled in triangle or a "1" beside it on the system board.

→ NOTE : Users are not encouraged to change the jumper settings not listed in this manual as they are considered factory defaults which may adversely affect system
performance.

JUMPER	DEFINITION
J11	CPU 1 Fan Connector, Center 12V
J21	CPU 2 Fan Connector, Center 12V
J231	Speaker Connector
J251	FDD Connector
J261	Parallel Port Connector
J262	Serial Port 1 Connector (COM 1)
J263	Serial Port 2 Connector (COM 2)
J271	IDE HDD Connector
J272	HDD LED Connector
J281	Reset Connector
J282	Keylock Connector
J284	PS/2 Connector
J285	PS/2 Connector
J286	Keyboard Connector
J301	Standard Power Supply Connector
JP171	CPU Clock Multiplier
JP181	CPU 1 Volatage, Jumper 1-2, 7-8. (1-2 VID0, 3-4 VID1, 5-6 VID2, 7-8 VID3)
JP182	CPU 2 Voltage, Jumper 1-2, 7-8 (1-2 VID0, 3-4 VID1, 5-6 VID2, 7-8 VID3)
JP283	1-2 Clear Password, 2-3 Normal
U1	CPU 1
U2	CPU 2
U177	Clock Oscillator

Table 2-1. Jumper Definitions

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System Memory

The system board can be equipped with the necessary memory for running all your applications. Memory comes in the form of DRAM (SIMMs) and is equiped with ECC, using parity memory (36bit).

Memory Locations

The board layout below shows the locations of the DRAM memory banks.

Figure 3-1. Memory Locations

Installing DRAM

SIMM Banks

The system board can accommodate onboard memory from 2
to 1024 MB using SIMMs (Single-In-Line Memory Modules).
The mainboard has four memory banks — Bank 0, Bank 1,
Bank 2, and Bank 3. Each bank has two SIMM sockets which
can accept either a 1MB, 2MB, 4MB, 8MB, 16MB, 32MB,
64MB or 128 MB SIMM in each socket.

DRAM Configuration

Memory can be installed in any combination as long as each
bank of 2 sockets are filled with the same size of SIMM
module. SIMM modules must be fast page mode with a speed
of 70 ns or faster. Each bank can independently accept single
or double-sided SIMMs. All memory banks use 72-pin mem-
ory modules with or without parity.

Installing & Removing Instructions

$\longrightarrow$ NOTE : Always observe static electricity precautions. See "Han-
dling Precautions" at the start of this manual.

Complete the following steps to install SIMM modules:

1. Carefully fit a SIMM at a 45 degree angle into the empty
   socket to be populated.

2. Swing each SIMM into its upright, locked position. When
   locking a SIMM in place, push on each end of the SIMM
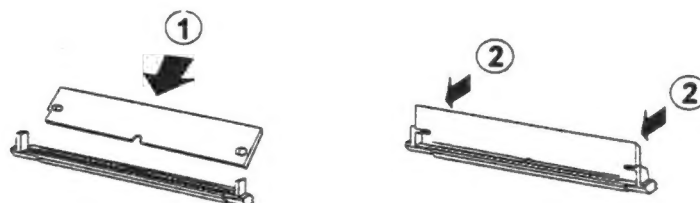   do not push in the middle.

Figure 3-1. Installing a SIMM Module

→   NOTE : The SIMMs will only fit in one direction

When adding RAM memory modules (SIMMs), it may be necessary to remove the existing SIMMs so you have enough room to install additional SIMMs.

Complete the following steps to remove a SIMM:

1. Carefully push out on the brackets securing each end of the SIMM, while pushing out on the SIMM until it rests at a 45 degree angle. It is sometimes necessary to unlock an adjacent SIMM to allow enough working space.

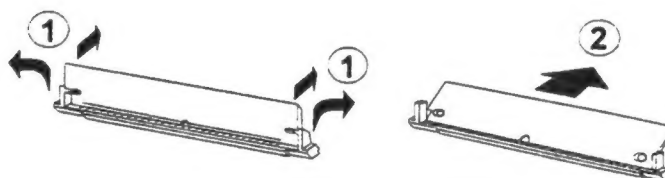2. Once the SIMM is unlocked and in its 45 degree position, lift the SIMM from its socket.

Figure 3-2. Removing a SIMM Module

System BIOS Setup

Overview: Configuration Types

The system board has a CMOS non-volatile memory (NVM) which stores two types of configuration information: the system configuration and the EISA add-on card configuration.

The content of the CMOS NVM is preserved by a built-in back-up battery when the system is powered off.

The system BIOS on the system board has a built-in Setup function which allows you to modify some of the system configurations such as password, drive types, built-in ports, etc.

Every time you add or remove EISA add-on cards, you need to run the EISA Configuration Utility. For more details, please refer to Chapter 5 "**EISA Configuration Utility.**"

This chapter introduces the System BIOS Setup program.

Invoke the System BIOS Setup Program

Every time the system is powered on, the system BIOS performs a series of internal diagnostics called the Power-On Self Test (POST). During the POST, the system displays the following message at the bottom of the screen: "**Press DEL to enter SETUP.**" To run the System BIOS Setup program, you can press the <Del> key whenever the above message appears.

You need to run the System BIOS program when:

1. System detects a configuration error and asks the user to run the System BIOS Setup program.

2. Enable, disable or change the system password setting.

3. Adding or removing IDE hard drives or floppy drives.

4. Adding or removing PCI add-on cards which use hardware interrupts. Please note that PCI video cards usually do not use any hardware interrupt.

5. Enable, disable or change the following built-in ports: IDE controller, floppy controller, parallel and serial ports.

6. Change other system configuration such as memory chip speed.

→ **NOTE : Incorrect system configuration may render the system inoperable. DO NOT run the System BIOS Setup unless it is absolutely necessary.**

When you first receive your system, it should have been configured correctly by your dealer. You probably do not have to run the System BIOS Setup program until you are ready to add new controller cards or peripherals to your system.

System BIOS Setup Main Menu

After pressing the <Del> key to invoke the System BIOS Setup program, you may need to wait a short moment before the following main menu appears:

```
                    SETUP UTILITY
              PCI/EISA BIOS 09/09/94—E0002

   STANDARD CMOS SETUP          PASSWORD SETTING
   BIOS FEATURES SETUP          IDE HDD AUTO DETECTION
   CHIPSET FEATURES SETUP       SAVE AND EXIT SETUP
   PCI CONFIGURATION SETUP      EXIT WITHOUT SAVING
   LOAD BIOS DEFAULTS


 Esc : Quit                   ↑↓—–    : Select Item
 F10 : Save & Exit Setup      (Shift)F2  : Change Color

      Time, Date, Hard Disk Type...
```

Use the <Up>, <Down>, <Left>, and <Right> arrow keys to move the highlight bard to your selection, then press the <Enter> key to invoke the selected sub-menu.

After you complete all your modifications in the sub-menus, you will return to this main menu.

If you press the <Esc> key in the main menu, the System BIOS Setup program will prompt you the "**Quit Without Saving (Y/N)?**" dialogue box. If you answer "Y", the system will discard your changes, exit the System BIOS Setup, and reboot the computer. If you answer "N", the system returns to the main menu. Following is a brief summary of each sub-menu.

FEATURE	FUNCTION
STANDARD CMOS SETUP	Date and Time, IDE Drive C: and D: Types, Floppy Drive A: and B: Types, Video Display Type, Hold-on-Error Selection, etc.
BIOS FEATURES SETUP	Internal/External Caches, IDE HDD Block Mode, Quick Post, Swap FDD, Boot Sequence, Shadow Memory, etc.
CHIPSET FEATURES SETUP	Built-in ports, Cache SRAM Size, Video BIOS Cacheable, Memory Hole Size and Starting Address, DRAM R/W Burst Timing.
PCI CONFIGURATION SETUP	PCI interrupt settings, Latency timers, etc.
LOAD BIOS DEFAULTS	Reset all system configuration to the BIOS default.
PASSWORD SETTING	Enable, disable, or change the password.
IDE HDD AUTO DETECTION	Automatically detect IDE hard disk drive types.
SAVE AND EXIT SETUP	Same as pressing the <F10> key.
EXIT WITHOUT SAVING	Same as pressing the <Esc> key.

Table 4-1. Features of System BIOS Setup

Standard CMOS Setup

```
                    STANDARD CMOS SETUP
                 PCI/EISA BIOS 09/09/94—E0002

Date  (mm:dd:yy) : Wed, Sep 14 1994
Time  (hh:mm:ss) : 22 : 20 : 43

                        CYLS. HEADS PRECOMP LANDZONE SECTORS MODE
Drive C : None (  0Mb)    0    0      0        0       0     —
Drive D : None (  0Mb)    0    0      0        0       0     —

Drive A : 1.44M, 3.5 in.
Drive B : None
                              ┌─────────────────────────────────┐
Video   : EGA/VGA             │   Base Memory:      640K         │
                              │   Extended Memory:  7168K        │
Halt On : All Errors          │   Expanded Memory:     0K        │
                              │   Other Memory:      384K        │
                              ├─────────────────────────────────┤
                              │   Total Memory:     8192K        │
                              └─────────────────────────────────┘

ESC : Quit          ↑↓→← : Select Item       PU/PD/+/- : Modify
F1  : Help        (Shift)F2 : Change Color    F3 : Toggle Calendar
```

The sub-menu allows you to change the system Date and Time, IDE hard disk drive types for drive C: and D:, floppy disk drive types for drive A: and B:, boot up video display mode, and POST error handling selection.

Use the <Up>, <Down>, <Left>, and <Right> arrow keys to move the highlight bar to the selected item, then type in the number or use <PageUp> and <PageDown> keys, or <+> and <-> keys in the numeric keypad to scroll through the options.

This sub-menu also displays the types and amount of the memory installed in the system.

You can press the <F3> key to toggle on and off the calendar display. If the calendar display is on, the calendar automatically changes when you change the Date selection.

When you have completed your modification, press the <Esc> key to exit this sub-menu and go back to the main menu.

Hard Disk Drive Type

The Drive C: and Drive D: type fields are for defining the types of the first and the second IDE hard drives in your system.

The system BIOS has a built-in table for popular IDE hard disk drive types. You can select the type for your IDE hard disk drive from the built-in table if a match is found.

If no type in the built-in table matches your IDE hard disk drive, you can select the "User" type and manually enter the hard drive parameters. You can alternatively use the "IDE HDD AUTO DETECTION" function in the main menu to have the system BIOS automatically detect the IDE hard drive types. Please refer to the "**IDE HDD Auto Detection**" section for more detail.

The Drive C: and Drive D: type fields are for IDE compatible hard disk drive types only. If your hard disk drives are SCSI hard disk drives, you should set the type in the corresponding field to "**None.**"

The SCSI hard disk drives are handled by the BIOS on the add-on SCSI controller card and they do not use system BIOS drive types.

Please note that in terms of drive name or drive number assignment, IDE compatible hard disk drives always come before other hard disk drives (such as SCSI).

For example, if you have two hard disk drives, one IDE and one SCSI, then the IDE hard disk drive will be the first hard disk drive (C:) and the SCSI hard disk drive will be the second hard disk drive (D:).

Floppy Disk Drive Type

If you add or remove a floppy disk drive (also called the diskette drive), you need to define the floppy drive type in the Drive A: or Drive B: field.

The Drive A: field is for the first floppy drive that the operating system see and the Drive B: is for the second floppy drive.

If the Swap Floppy Drive option in the BIOS Features Setup is Enabled, then the Drive A: is the second physical floppy drive and the Drive B: is the first physical floppy drive as defined by the floppy connectors.

Please note that if the Onboard FDD Controller in the Chipset Features Setup is enabled, the Swap Floppy Drive option is implemented using hardware and therefore it is transparent to the operating systems.

If the Onboard FDD Controller is disabled, the Swap Floppy Drive option is implemented using system BIOS and therefore it works only under DOS.

BIOS Features Setup

```
                    BIOS FEATURES SETUP
                 PCI/EISA BIOS 09/09/94—E0002

CPU Internal Cache    : Enabled    Video  BIOS    Shadow : Enabled
External Cache        : Disabled   C8000 - CBFFF Shadow : Disabled
IDE HDD Block Mode     : Disabled   CC000 - CFFFF Shadow : Disabled
Quick Power On Self Test : Enabled    D0000 - D3FFF Shadow : Disabled
Boot Up Floppy Seek    : Disabled   D4000 - D7FFF Shadow : Disabled
Swap Floppy Drive      : Disabled   D8000 - DBFFF Shadow : Disabled
Boot Sequence         : A, C       DC000 - DFFFF Shadow : Disabled
Computer Virus Warning : Disabled   E0000 - E3FFF Shadow : Disabled
Security Option       : Setup      E4000 - E7FFF Shadow : Disabled
Boot Up Numlock Status : Off        E8000 - EBFFF Shadow : Disabled
                                   EC000 - EFFFF Shadow : Disabled


                                   ESC: Quit          ↑↓→← : Select Item
                                   F1  : Help          PU/PD/+/- : Modify
                                   F5  : Old Values    (Shift)F2  : Color
                                   F6  : Load BIOS Defaults
                                   F7  : Load Setup Defaults
```

CPU Internal Cache

Possible settings are Disabled and Enabled. The default setting is Enabled. Each CPU of this system has its own built-in high speed cache memory. The CPU's internal cache also called the Level-1 cache or L1 cache.

Enable CPU's internal cache generally improves system's performance. Sometimes, however, you may want to disable it for the purpose of testing or trouble-shooting.

External Cache

Possible settings are Disabled and Enabled. The default setting is Disabled. The system supports an optional cache SRAM module. Please refer to the "Cache SRAM Size" option of the "Chipset Features Setup" menu for more detail.

The optional cache SRAM is usually called the External cache, Level-2 cache, or L2 cache. Enabling the external cache generally improves system's performance. Sometimes, however, you may want to disable it for the purpose of testing or trouble-shooting.

IDE HDD Block Mode

Possible settings are Disabled and Enabled. The default setting is Disabled. Most new IDE drives support the read-multiple/write-multiple commands. These commands allow the system BIOS or operating system device drivers to instruct the IDE drives to generate only one interrupt for each sector, reducing system overhead during disk accesses.

Enable this option if you want the system BIOS to use the read-multiple/write-multiple commands to access the IDE drives in your system.

Quick Power On Self Test

Possible settings are Disabled and Enabled. The default setting is Enabled. Enable this option if you want the system BIOS to bypass the extensive but time-consuming memory tests. Please note that some hard disk drives take longer time to spinning up. If you encounter hard disk drive errors during power up, you should disable this option.

Boot Up Floppy Seek

Possible setting are Disabled and Enabled. The default setting is Disabled. During POST time, the system BIOS performs floppy disk drive tests by issuing the time-consuming seek commands. Disabling this option shortens the system boot up time.

Swap Floppy Drive

Possible settings are Disabled and Enabled. The default setting is Disabled. Enabling this feature allows you to switch the order in which the system access the floppy drives. The second floppy drive becomes drive A: and the first floppy drive becomes drive B:.

Boot Sequence

Possible settings are "A, C" and "C, A". The default setting is "A, C". Some computer viruses are transmitted to hard disk drives by booting from an infected diskette.

If you set the boot sequence to "C, A", the system BIOS will first try to boot the operating system from the first hard disk drive, drive C:. If the drive C: is not found, the system BIOS will try to boot from the first floppy drive, drive A:.

Boot sequence "C, A" minimizes the possibility of accidentally booting from an infected diskette when the drive C: already has a bootable operating system installed. You set the boot sequence to "A, C" only when you need to boot up from drive A: to install a new operating system. You should also write-protect all your bootable diskettes so that they cannot be infected by computer viruses.

Computer Virus Warning

Possible settings are Disabled and Enabled. The default setting is Disabled.

When enabled, the system BIOS will monitor the master boot sector and the DOS boot sector of the first IDE hard disk drive. If the boot sector is about to be modified, the system BIOS will issue a warning message and prompt you to accept or reject the modification.

If you accept the modification, the system BIOS will write to the boot sector. If you reject the modification, the system BIOS will abort the write request and return an error to the calling program. Please note that the calling program will usually retry the write operation several times before it gives up.

To prevent false alarms, you may want to disable this function if you are about to install a new operating system to the first IDE hard disk drive.

This function works only if the first hard disk drive is an IDE drive. If the first hard disk drive is a SCSI drive, the system BIOS is bypassed by the SCSI BIOS of the add-on SCSI controller and this function will not be activated.

Security Option

Possible settings are Setup and System. The default setting is Setup.

If you set the security option to System, the system BIOS will request you to enter the password every time the system boots or any time you try to run the system BIOS Setup program.

If you set the security option to Setup, the system BIOS will request you to enter the password only when you try to run the system BIOS Setup program.

You can enable or disable the password from the PASSWORD SETTING function of the main menu.

Boot Up Numlock Status

Possible settings are Off and On. The default setting is Off.

When this option is On. the system BIOS automatically enables the Num Lock function when the system boots.

When the Num Lock function is enabled, the numeric/arrow keypad on the right-hand side of the keyboard functions as a 10-key numeric keypad for easier data entry.

Video BIOS Shadow

Possible settings are Disabled and Enabled. The default setting is Enabled.

When enabled, the system BIOS copies the video BIOS ROM code of the add-on video card to system memory for faster access. This generally improves the video performance.

The following options also affect the video performance:
Video BIOS Cachable in Chipset Features Setup.
PCI VGA DOS Performance in Chipset Features Setup.

You may want to disable this option for the purpose of testing or trouble-shooting. This option applies to standard ISA and EISA video cards only. If the add-on video card is a PCI card, the system BIOS always shadows the video BIOS and sets this option to Enabled.

C8000-CBFFF to EC000-EFFFF Shadow

Possible settings are Disabled and Enabled. The default setting is Disabled.

When enabled, the system BIOS copies the BIOS ROM code of the add-on card to system memory for faster access. This may improve the performance of the add-on card.

Some add-on cards will not function properly if its BIOS ROM code is shadowed. To use these options correctly, you need to know the memory address range used by the BIOS ROM of each add-on card.

Chipset Features Setup

```
                    CHIPSET FEATURES SETUP
                PCI/EISA BIOS 09/09/94--E0002

Onboard IDE Controller    : Enabled     DRAM R/W Burst Timing   : X333/X333
Onboard FDD Controller    : Enabled
Onboard Parallel Port     : 378H
Onboard Serial Port 1     : 3F8H (COM1)
Onboard Serial Port 2     : 2F8H (COM2)

Cache SRAM Size           : 256K

Video  BIOS Cacheable     : Enabled

Memory Hole Size          : Disabled
Memory Hole Start Address : 15 MB

PCI VGA DOS PERFORMANCE: Normal

                                         ESC: Quit            ↑↓ ← → : Select Item
                                         F1   : Help          PU/PD/+/-  : Modify
                                         F5   : Old Values     (Shift)F2  : Color
                                         F6   : Load BIOS Defaults
                                         F7   : Load Setup Defaults
```

Onboard IDE Controller

Possible settings are Disabled and Enabled. The default setting is Enabled. Enable this option if your IDE drives use the onboard standard ISA IDE controller. If your system has a plug-in IDE controller that conflicts with the onboard one, the system BIOS will not enable the onboard controller even if this option is enabled.

Onboard FDD Controller

Possible settings are Disabled and Enabled. The default setting is Enabled. Enable this option if your diskette drives use the onboard floppy disk drive (FDD) controller.

If your system has a plug-in FDD controller that conflicts with the onboard one, the system BIOS will not enable the onboard controller even if this option is enabled.

Onboard Parallel Port

Possible settings are Disabled, 03BCH, 0378H, and 0278H. The default setting is 0378H. The onboard parallel port supports the advanced EPP and ECP modes.

You can enable the onboard parallel port at one of the following addresses:

PORT ADDRESS	COMMONLY KNOWN NAME	IRQ
03BCH	Alternative LPT1	7
0378H	LPT1	7
0278H	LPT2	5

The onboard parallel port IRQ selection is controlled by a jumper on the system board. The default jumper setting is IRQ 7. If your system has a plug-in parallel port that conflicts with the onboard one, the system BIOS will not enable the onboard port even if this option is enabled.

Onboard Serial Port 1

Possible settings are Disabled, 03F8H (COM1), and 03E8H (COM3). The default setting is 03F8H (COM1). The two on-board serial ports support the 16550 compatible FIFO mode. You may enable the onboard serial port 1 at one of the following addresses:

PORT ADDRESS	COMMONLY KNOWN NAME	IRQ
03F8H	COM1	4
03E8H	COM3	4

If your system has a plug-in serial port that conflicts with the onboard one, the system BIOS will not enable the onboard port even if this option is enabled.

Onboard Serial Port 2

Possible settings are Disabled, 02F8H (COM2), and 02E8H (COM4). The default setting is 02F8H (COM2). You may enable the onboard serial port 2 at one of the following addresses:

PORT ADDRESS	COMMONLY KNOWN NAME	IRQ
02F8H	COM2	3
02E8H	COM4	3

If your system has a plug-in serial port that conflicts with the onboard one, the system BIOS will not enable the onboard port even if this option is enabled.

Cache SRAM Size

Possible settings are 0K, 256K, and 512K. The default setting is 256K. The system board has a cache RAM slot that supports one of the following optional cache RAM modules:

256K Bytes Asynchronous Cache SRAM Module

512K Bytes Asynchronous Cache SRAM Module.

The optional cache RAM is usually called the External cache or the Level-2 cache, or L2 cache (vs. CPU's internal Level-1 cache). If you set the "**External Cache**" option of the "**BIOS Features Setup**" to "**Disabled**", this option will be ignored.

Video BIOS Cacheable

Possible settings are Disabled and Enabled. The default setting is Enabled. When this option is enabled, system will try to execute using the cache instead of the slower DRAMs or ROMs. This generally improves the video performance. You may want to disable this option for the purpose of the testing or trouble-shooting.

Memory Hole Size

Possible settings are Disabled, 1MB, 2MB, 4MB, and 8MB. The default setting is Disabled. Some legacy ISA add-on cards, such as Banyan network cards, require the system to disable a range of system memory so that the add-on cards can use that range for their onboard memory buffers.

Memory Hole Start Address

Possible settings are Disabled, 1 MB, 2 MB, 4 MB, 8 MB, 12 MB, 13 MB, 14 MB, and 15 MB. The default setting is 15 MB.

PCI VGA DOS Performance

Possible settings are Normal and High. The default settings is Normal. Setting this option to HIGH allows the PCI controller to speed up access by merging serveral accesses into one 32-bit access when the standard VGA paged frame buffer is being used. This is the mode used by DOS. Not all PCI VGA boards work with this setting.

DRAM R/W Burst Timing

Possible settings are X444/X444, X444/X333, and X333/X333. The default setting is X333/X333. This option controls the DRAM read/write timing during burst mode. This option is affected by at least the following two factors: the CPU External Clock Speed and the DRAM Speed. The following table is the recommended high performance setting:

		CPU EXTERNAL CLOCK SPEED (MHz)	
		60	66
DRAM SPEED (nanoseconds)	60	X333/X333	X333/X333
	70	X333/X333	X444/X444

Other factors such as the quality of a particular add-on DRAM could also affect this option. Setting this option to an overly aggressive value may not significantly improve the system performance, but will most likely affect the stability and reliability of the system.

You should set this option to the most conservative setting, X444/X444, if you are not certain about the effect.

PCI Configuration Setup

```
                        PCI CONFIGURATION SETUP
                      PCI/EISA BIOS 09/09/94—E0002

SLOT 1 Device #       : 15              INT #1 Using IRQ   : NA
   INT ABCD Mapping : #1, #2, #3, #4     INT #2 Using IRQ   : NA
   Latency Timer     : 64 PCI Clock      INT #3 Using IRQ   : NA
                                         INT #4 Using IRQ   : NA
SLOT 2 Device #       : 14 ·
   INT ABCD Mapping : #2, #3, #4, #1     PCI Bus Master     : Enabled
   Latency Timer     : 64 PCI Clock

SLOT 3 Device #       : 13
   INT ABCD Mapping : #3, #4, #1, #2
   Latency Timer     : 64 PCI Clock



                                         ESC: Quit              ||——— : Select Item
                                         F1  : Help          PU/PD/+/- : Modify
                                         F5  : Old Values     (Shift)F2 : Color
                                         F6  : Load BIOS Defaults
                                         F7  : Load Setup Defaults
```

SLOT X Device

This is the PCI device number that the system assigns to the PCI device located at slot X. This field is for your information only and cannot be modified.

INT ABCD Mapping

Each PCI card can have up to four PCI card interrupt lines, INT A, B, C, and D. Each one of the four PCI card interrupt lines is connected to one of the four PCI system interrupt lines, 1, 2, 3, and 4, on the system board when the PCI card is plugged into one of the PCI slots. Because the PCI specification recommends the system to assign the four PCI system interrupt lines in a rotated fashion across PCI slots, the PCI system interrupt lines appear in the PCI slots of this system in the following order:

PCI SLOT	PCI CARD INT.			
	A	B	C	D
1	1	2	3	4
2	2	3	4	1
3	3	4	1	2

This field is for your information only and cannot be modified.

INT #N Using IRQ: M

Possible settings are NA, 3, 4, 5, 6, 7, 9, 10, 11, 12, 14, and 15. The default setting is NA. The four PCI system interrupt lines, INT 1, 2, 3, and 4, need to be mapped to four of the 16 standard ISA hardware interrupt request lines, IRQ 0 to 15. This field specifies the mapping from a PCI system interrupt line, INT N, to one standard ISA hardware interrupt request line, IRQ M. If your system has add-on PCI cards that use interrpt lines, you must set the corresponding IRQ mapping correctly in order for the cards to work properly. For example, if you have a PCI IDE card in the slot 2, you need to set the INT #2 to use IRQ 14. Do not map any INT lines to IRQs that are already in use by other devices in the system. The following IRQ lines have their typical usage:

IRQ	USAGE
0	Programmable Timer
1	Keyboard Controller
2	Cascaded Input from Second Interrput Controller
3	COM2 and COM4
4	COM1 and COM3
5	LPT2 (0278H)
6	Floppy Disk Controller
7	LPT1 (0378H or 03BCH)
9	Software re-route to IRQ2
14	IDE Controller

Latency Timer

Possible settings are 0 to 255. The default setting is 64. This is the maximum time, in units of PCI Bus Clocks, allowed for the PCI device of a PCI Slot to continuously occupy the PCI bus during a burst transfer. The CPU clock to PCI clock speed relation is as follows:

CPU TYPE	CPU EXTERNAL CLOCK SPEED	CPU INTERNAL CLOCK SPEED	PCI BUS CLOCK SPEED	PCI BUS CLOCK RATE (microseconds)
Pentium 735\90	60	90	30	0.0333
Pentium 815\100	66	100	33	0.0303

The default setting, 64, is about 2.13 microseconds at 60 MHz CPU External Clock Speed.

PCI Bus Master

Possible settings are Disabled and Enabled. The default setting is Enabled. If this option is enabled, the system BIOS will try to enable the PCI Bus Master Mode for all PCI add-on cards. If this option is disabled, the system BIOS assumes that a PCI add-on card will enable its PCI Bus Master Mode if it is capable of being a PCI Bus Master.

A white paper document from the PCI SIG (Special Interest Group) recommends the system BIOS not to enable the PCI Bus Master Mode. However, some PCI add-on cards expect the system BIOS to enable the PCI Bus Master Mode otherwise they will not function properly.

IDE HDD Auto Detection

When you execute the "**IDE HDD AUTO DETECTION**" function from the main menu, the system BIOS will try to automatically determine the type of each IDE hard disk drive in your system. If the IDE hard disk drive is present, the system BIOS usually can determine its drive type in a few seconds.

The system BIOS will display the detected hard disk drive parameters and prompt you for acceptance or rejection. If the IDE hard disk drive support the LBA mode, you will be first prompted the following message:

Do you want to support LBA (Y/N)?

Enter <N> to select the standard CHS (Cylinder, Head, Sector) method, or enter <Y> to select the enhanced LBA (Logical Block Address) mode for the system BIOS to access the IDE hard disk drive.

Please refer to the following sub-section for more information about the LBA mode.

You will be prompted with the following message:

Do you accept this drive X (Y/N)?

If you enter <Y> to accept the displayed parameters, the system BIOS will automatically update the type of hard disk drive X in the "**STANDARD CMOS SETUP**."

If you enter <N> to reject the displayed parameters, the system BIOS will not modify the type of hard disk drive X.

If the IDE hard disk drive is not installed, or if any error occurs, the system BIOS will abort the auto IDE type detection after a while (usually within 30 seconds.) You can also manually abort the auto IDE type detection immediately by pressing the <Esc> key when you see the following messag:

AUTO-DETECTING IDE HDD DRIVES...

If the auto IDE type detection is aborted, the system BIOS will display the all-zero parameters and prompt you for acceptance or rejection.

If you enter <Y> to accept the all-zero parameters, the system BIOS will automatically set the type of hard disk disk drive X to "**None**."

LBA Mode : Logical Block Address

The standard ISA system BIOS hard disk routine uses cylinder, head, and sector numbers (known as the CHS method) to access hard disk drives. The standard BIOS CHS method cannot access the disk area above 528 MegaBytes because the maximum CHS numbers are restricted to:

ITEM	CHS RANGE	LBA RANGE
Cylinder	0 to 1023	0 to 1023
Head	0 to 15	0 to 255
Sector	1 to 63	1 to 63

Therefore, the maximum disk capacity is
1024 x 16 x 63 x 512 = 528 MBbytes for CHS.
1024 x 256 x 63 x 512 = 8456 MBtypes for LBA.

If you configure the system BIOS to use the LBA mode on your IDE hard disk drives, operating systems (such as DOS) that use the system BIOS hard disk disk routine to access hard disk drives will be able to support IDE hard disk drives up to 8.4 Gigabytes.

Many protected mode opeating systems access the IDE hard disk drives directly without using the system BIOS hard disk routine. These operating systems may not support the LBA mode. Some of the protected mode operating systems can support IDE hard disk drives larger than 528 Megabytes without supporting the LBA mode.

Password Setting

You can use this function to create a password or disable the password. When you select this function from the main menu, you will be prompted to enter a password. You can use the <Esc> key to abort the selection without changing the password setting . To create a password, you type the password (up to 8 characters) and press <Enter> key. You will be asked to confirm the password. Type the password again and press the <Enter> key. To disable the password, press the <Enter> key without entering any password. A message will appear to confirm the password is disabled. Please refer to the Security Option of the BIOS Features Setup sub-menu for additional information on how to set the password for booting the system or entering the system BIOS Setup program.

Clear Password

If you forget your password, turn off the system power first and remove the system unit cover. Locate the CLEAR PASS-WORD jumper on the system board. It is close to the keyboard connector.

Move the jumper from the NORMAL to the CLEAR position. Turn the system power back on and the system BIOS will display a message indicating the password is cleared. Then, enter the System BIOS Setup, and execute the "**SAVE AND EXIT SETUP**." Power off the system again and restore the jumper to the NORMAL position. Turn the system power back on and you should not be asked for the password.

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EISA Configuration Utility

EISA Configuration Utility (ECU) is a software utility for the configuration of Extended Industry Standard Architecture (EISA) computers. The ECU, which is provided with your system, should be executed the first time your computer is booted and any time you add, remove or move add-in EISA boards. The ECU generates conflict-free configuration information for the system and helps the user correctly set switches and jumpers on add-in boards.

What the ECU Does

The ECU makes the advanced EISA 32-bit technology easy to use. With the older Industry Standard Architecture (ISA) 16-bit system, IRQs, DMA channels, memory maps, etc. were configured with hardware jumpers and switches. For this, jumpers had to be clearly marked, and the manufacturer's manual had to accurately describe the jumper and switch setting. Setting jumpers and switches so boards did not conflict was the responsibility of the user. The EISA transfers much of the configuration responsibility to the ECU.

Many EISA add-in boards are designed without switches or jumpers. EISA boards are configured through a series of software initialization commands stored in non-volatile memory. When the system boots up, the Basic Input/Output System (BIOS) program downloads initialization information from non-volatile memory to the slot-specific I/O addresses for each add-in board, allocating system resources and declaring manufacturer-defined options.

When you configure the system using the ECU, the ECU reads the information in the configuration (CFG) file supplied by the board manufacturer. It compares the resources required by the board to the resources available on the system, and creates a conflict-free system configuration.

If two boards try to reserve the same resource, the ECU first attempts to resolve the conflict by assigning alternate resources to the board. If the conflict persists, the ECU disables one of the boards and notifies the user.

When all conflicts are resolved, the configuration information is stored in the system's non-volatile memory (NVM). The next time the system boots, the BIOS uses the information in NVM to initialize the hardware.

The ECU also saves the configuration information to a backup disk file called SYSTEM.SCI. If for any reason the data stored in NVM is lost, you can reload the configuration information from the disk file.

→   **NOTE : Do not store the configuration information on the hard disk. If the data in NVM is lost, it may not be possible to access the hard drive.**

ISA Compatibility

Your system accepts 8-bit and 16-bit Industry Standard Architecture (ISA) boards. The EISA expansion bus is a superset of the ISA design and maintains full compatibility with add-in boards originally designed for 8-bit and 16-bit ISA computers.

Some ISA boards have companion CFG files. The procedure for configuring ISA boards is similar to the procedure for EISA boards, except you may be required to physically set jumpers or switches.

Overlay Files

Each add-in board in an EISA system has a corresponding configuration (CFG) file that describes the characteristics and the required system resources of that board. Despite the flexibility of the CFG file format, the ECU cannot support all possible configuration options. Therefore, the code in the form of an overlay (OVL) file may be used in companion with the CFG file. This allows customization of the configuration for any unusual board-specific needs. The incorporation of the OVL file is transparent to the user.

Elements of the ECU

This section provides general information for using the ECU menus and submenus.

→   **NOTE : Making a backup copy of the ECU diskette and running the ECU from the backup is highly recommended. Refer to the DISKCOPY command in the MS-DOS User's Guide and Reference for additional information.**

Cursor Movement

You can use keyboard or mouse to choose an item in a menu. To move the cursor on the screen using the keyboard:

■ Press [Tab] to move to the next option.

■ Press [Shift] + [Tab] to move to the previous option.

■ Press [Ctrl] + [Home] to move to the beginning of the menu.

■ Press [Page Down] to move down one screen.

■ Press [Page Up] to move up one screen.

■ Press [Down Arrow] to move down one line.

■ Press [Up Arrow] to move up one line.

■ Press [Ctrl] + [End] to move the end of the information.

With the desired item highlighted, press [Enter] to select the option.

Help Screens

General help screens automatically display on main menus. Context-sensitive help information can be displayed for sub-menus, windows and specific entries. To display context-sensitive help information, press [F1]. The help information regarding the screen displayed appears. If you press [F1] while using the Configure Computer option, the EISA Configuration Help menu displays.

Each EISA Configuration Help menu option has a single enhanced letter. To make a selection highlight the option and press [Enter] or type the enhanced letter that corresponds to the desired menu item. The help screen for the selected item displays. To exit Help, press [Esc].

Start the ECU

When the system is loaded, the system BIOS determines if the configuration information in non-volatile memory (NVM) is valid. If the hardware configuration matches the configuration in non-volatile memory, the system loads the operating system and the DOS prompt displays. If this is the first time the system is booted or the configuration information does not match, the following message displays:
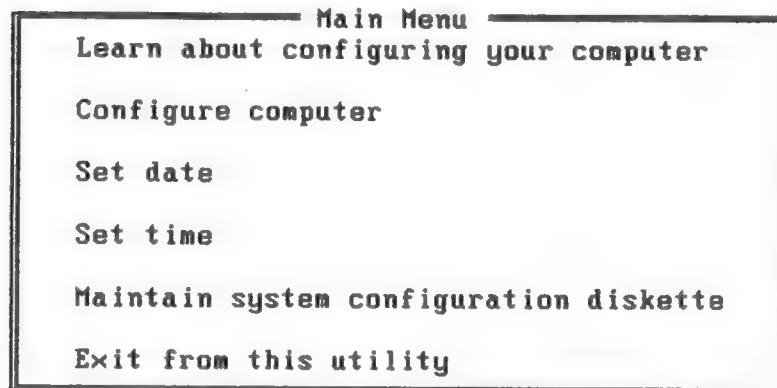
```
EISA Slot XX Error
EISA Configuration Error
Please RUN EISA CONFIGURATION UTILITY
```

If this message appears, put the ECU diskette in drive A: and

complete the following steps:

1. The system loads the ECU and the logo screens displays.

2. Press any key and a welcome screen displays.

3. Press [Enter] and the Main Menu displays. The Main Menu is shown in the next figure. Descriptions of the menu options follow the illustration

Figure 5-1 EISA Configuration Utility Main Menu

```
═════════════════ Main Menu ═════════════════
Learn about configuring your computer

Configure computer

Set date

Set time

Maintain system configuration diskette

Exit from this utility
```

Learn about configuring your computer is a series of information screens that describe the process of installing add-in boards.

Configure computer guides you through the process of loading initialization information into non-volatile memory. The initialization information is used to reserve system resources for add-in boards and the system boards.

Set date opens the Set Date window. The ECU allows you to set the date for your system calendar. The date is maintained by the system clock, even when power is turned off.

Set time opens the Set Time window. The ECU allows you to set the time for your system clock. The time is maintained by the system clock, even when power is turned off.

Maintain system configuration diskette maintains the CFG and SCI files and performs tasks such as storing the system configuration information on diskette and duplicating SCI and CFG files. Primarily, this option makes multiple copies of the system configuration for the purposes of backup and transferring the same configuration to several systems.

Exit from this utility exits the ECU. A dialogue box appears allowing you to confirm or cancel the exit command.

Starting the ECU from the DOS Prompt

The ECU utility can be started from the DOS prompt with control parameters predefined. The following steps start the utility from the floppy drive:

1. Insert the System Configuration diskette into drive A and type the following command (but not the brackets):

   ┌──┐
   │ [d:] [path] SD   [/B] [/H] [/K] [/M] │
   └──┘

where:

d: is the drive which contains the utility files.

path   is the path to utility files.

/B   is the BIOS video mode and causes all screens to display using BIOS Int 10h calls. This parameter should be used with nonstandard displays. The default mode writes directly to video memory.

/H   is the high-resolution display switch. If you have an EGA monitor, the screen display 43 lines. If you have a VGA monitor, the screen displays 50 lines. The default is 25 lines for both EGA and VGA monitors.

/K   is the keyboard only mode and it disables the mouse, even if the driver is loaded and a mouse is present. The default supports a mouse if the driver is loaded.

/M   is the monochrome display mode and causes the utility to display the screens in black and white.

2. Press [**Enter**] and the system loads the ECU and the logo screen displays.

3. Press any key and a welcome screen displays.

4. Press [**Enter**] again and the Main Menu displays.

Configure the System

This section provides instructions for loading CFG files information, editing the system configuration, reviewing switch settings and saving the initialization information to non-volatile memory and the SYSTEM.SCI file on the ECU diskette.

Often the system detects the presence of a new EISA board or device and automatically issues a request for a configuration file. Prompts are displayed, asking you to load the diskette containing the configuration file.

Occasionally the system is unable to detect the presence of a board. If the system cannot detect a board, the system must be configured using a manufacturer supplied CFG file. The initialization information is assigned to an expansion slot by selecting the "**Add or remove boards**" option.

To access the "**Steps in Configuring Your Computer**" screen from the Main Menu, highlight the "**Configure computer**" option and press [**Enter**].

If you added a board that the system can detect, you are automatically prompted for the CFG file by the Automatic Add screen. If there are no changes that the system can detect, the "**Steps in Configuring Your Computer**" screen displays.

To add a requested CFG file, place the diskette containing the requested CFG file in drive A and press [**Enter**]. After the file is loaded, you are prompted for the ECU diskette. Place the ECU diskette in drive A: and press [**Enter**]. The Steps in Configuring Your Computer screen displays. The following figure shows the screen. A brief description of each option follows the illustration.

```
┌───────────── Steps in configuring your computer ─────────────┐
│                                                              │
│     Step 1:   Important EISA configuration information       │
│                                                              │
│     Step 2:   Add or remove boards                           │
│                                                              │
│     Step 3:   View or edit details                           │
│                                                              │
│     Step 4:   Examine required switches                      │
│                                                              │
│     Step 5:   Save and exit                                  │
│                                                              │
├──────────────────────────────────────────────────────────────┤
│ ►Select=ENTER◄   <Cancel=ESC>                                │
└──────────────────────────────────────────────────────────────┘
```

Figure 5-2 Steps in Configuring Your Computer Screen

Important EISA configuration Information describes the differences between the EISA and ISA boards, and provides an overview of the other configuration options.

Add or remove boards loads or deletes the CFG file for an add-in board and assigns the CFG file to an expansion slot.

View or edit details allows you to modify the system board configuration and edit the resources used by the add-in boards. **Examine required switches** reads the CFG file for information provided by the manufacturer regarding jumper and switch settings.

Save and exit provides the option to save the configuration to the computer's non-volatile memory and the SYSTEM .SCI file or to abandon the configuration without implementing the changes.

Important EISA Configuration Information

To review the EISA configuration process and how it differs from ISA configuration, highlight "**Important EISA configuration information**" and press [**Enter**]. The first information screen displays.

Press [**Enter**] to page through the screens. When you have finished reviewing the screens, press [**F10**] to return to the Steps in Configuring Your Computer screen.

Add or Remove Boards

Configuration information for every board (including the system board) installed in the system must be loaded into non-volatile memory to reserve system resources.

1. Highlight "**Add or remove boards**" and press [**Enter**]. The Add or Remove Boards screen displays.
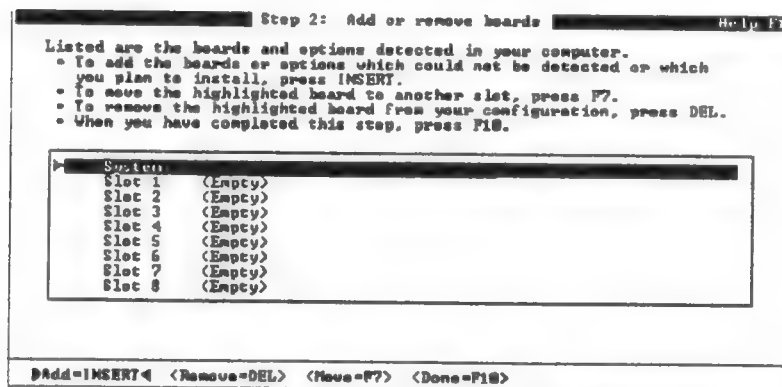

Figure 5-3. Add or Remove Boards Screen

2. Press [**Insert**]. The Add window appears.

3. Press [Enter]. The Add Configuration (CFG) file window displays and the configuration files in the default subdirectory are listed on the screen. If the CFG file is in another subdirectory, press [F7] to change subdirectories.

```
═══════════════ Add Configuration (CFG) file ═══════════════
Select a file to add.
  Directory:  D:\CFG\*.CFG

 ┌─────────────────────────────────────────────────────────┐
 │▶!ADP0000.CFG  Adaptec 32-bit EISA SCSI Host Adapter      >│
 │ !DPTA401.CFG  DPT SCSI Host Bus Adapter (PM2012B or PM4012B/9X>│
 │ !EVX0011.CFG  Everex EV0011 ISA QIC-02 Tape Controller Card  >│
 │ !EVX2027.CFG  Everex EV2027 ISA SpeedLink PC16 Network Card  >│
 │ !EVX0634.CFG  Everex Viewpoint Premium VGA Adapter       >│
 │ !EVX0670.CFG  Everex Viewpoint VGA Adapter               >│
 │ !ISA0000.CFG  Generic ISA Adapter                        >│
 │ !NVL0701.CFG  Novell NE3200 Bus Master Ethernet          >│
 │ !USC0221.CFG  UltraStor - ULTRA 22CA ESDI Hard Disk Controller>│
 └─────────────────────────────────────────────────────────┘

▶Select=ENTER◀   <Sort=F6>   <Directory=F7>   <Cancel=ESC>
```

Figure 5-4. Add Configuration File Screen

4. Highlight the CFG file and press [Enter]. The Add Confirmation screen displays.

5. Press [Enter] to continue or press [Esc] to cancel the operation. The Add screen displays.

```
═══════════════════════ Add ═══════════════════════
Select an acceptable slot for the board and press ENTER.

        System
 ▶ -> Slot 1      (Empty)
      Slot 2      (Empty)
      Slot 3      (Empty)
   -> Slot 4      (Empty)
   -> Slot 5      (Empty)
   -> Slot 6      (Empty)
   -> Slot 7      (Empty)
   -> Slot 8      (Empty)

The (->>) indicates an acceptable slot for the board.

▶Ok=ENTER◀   <Cancel=ESC>
```

Figure 5-5. Add Screen

6. Highlight the target expansion bus slot and press [Enter]. The Add or Remove Boards screen displays. The configuration file is listed to the right of the slot to which it is assigned.

7. Repeat the previous procedure for the next board or press [F10] to return to the steps in Configuring Your Computer screen.

View or Edit Details

The ECU automatically selects resources options that are conflict-free. You may select resource options other than what was automatically selected using the View or Edit Details menu.

An advanced configuration feature provides additional control over the add-in boards. It allows you to lock the configuration of an add-in board, access configuration details; control the BIOS and maintain the SCI (System Configuration Information) files.

To modify the configuration, complete the following steps:

1. Highlight "View or edit details" and press [Enter]. The View or Edit Details screen displays.
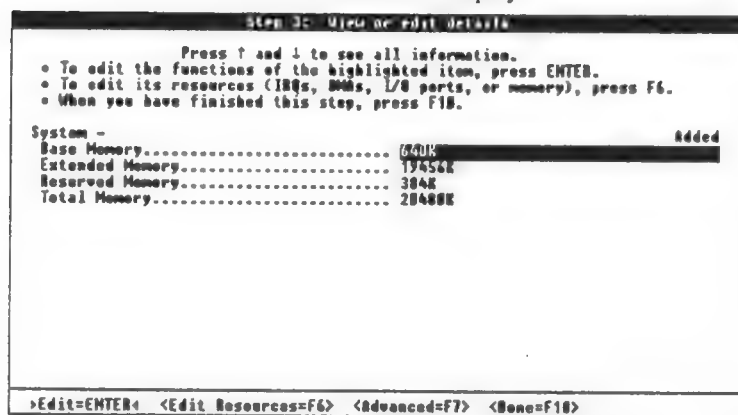

Figure 5-6 View or Edit Details Screen

2. Use the up and down arrow keys to move the cursor throughout the various lines. Press [Enter] to modify the entry. The system board entries are describes below.

System Information

System Information describes the types and status of the system. The BIOS automatically detects these items and their status cannot be changed by the user.

Base Memory is set to "640KB."

Extended Memory displays the amount of extended memory available. This option cannot be changed by the user.

Reserved Memory is memory reserved by the system for use by the system shadowing features and cannot be changed by the user.

Total Memory displays the total memory installed in the system.

Individual Slot Configuration

Each slot is assigned a configuration file. The reserved resources are listed near the bottom of the View or Edit Details menu. The configuration file determines the resource options. Consult the board manufacturer's documentation for further information on configuring the add-in board.

Advanced Add-in Board Configuration

The advanced features include lock/unlock boards, view additional system information, set verification mode and maintain SCI files. To access these features, press [F7] while the View or Edit Details menu is displayed. The Advanced Menu appears.
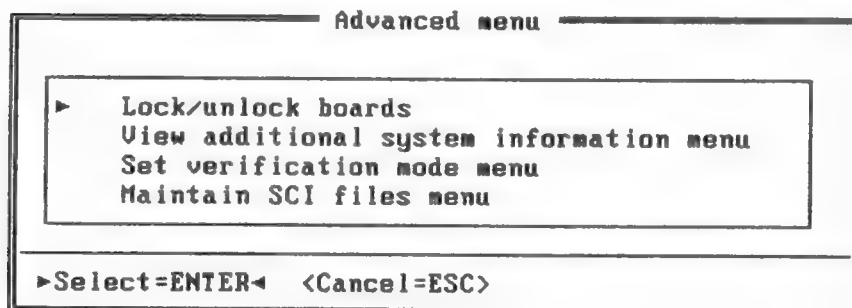
```
═══════════════════ Advanced menu ═══════════════════


    ►   Lock/unlock boards
        View additional system information menu
        Set verification mode menu
        Maintain SCI files menu



►Select=ENTER◄   <Cancel=ESC>
```

Figure 5-7. Advanced Menu Screen

Lock/Unlock Boards

The configuration for a board can be locked so the configuration cannot be changed until the board is unlocked. The system board and all add-in boards can be locked. This also prevents the system from modifying the file if a fast (automatic) configuration is performed. Deactivated boards cannot be locked.

Highlight the "**Lock/unlock boards**" option and press [**Enter**]. The Lock/unlock Boards screen displays.

```
━━━━━━━━━━━━━━ Lock/unlock boards ━━━━━━━━━━━━
Locking a board prevents changes to a board's settings.
• To change the highlighted board's status, press ENTER.
• To lock all boards, press F7.  To unlock all boards, press F8.


    ┌▶──System───────────────────────────────────┐│
    │   Slot 1     (Empty)                        ││
    │   Slot 2     (Empty)                        ││
    │   Slot 3     (Empty)                        ││
    │   Slot 4     (Empty)                        ││
    │   Slot 5     (Empty)                        ││
    │   Slot 6     (Empty)                        ││
    │   Slot 7     (Empty)                        │▼
    └─────────────────────────────────────────────┘
 ! = Locked

▶Lock/Unlock=ENTER◀   <Lock All=F7>   <Unlock All=F8>   <Done=F10>
```
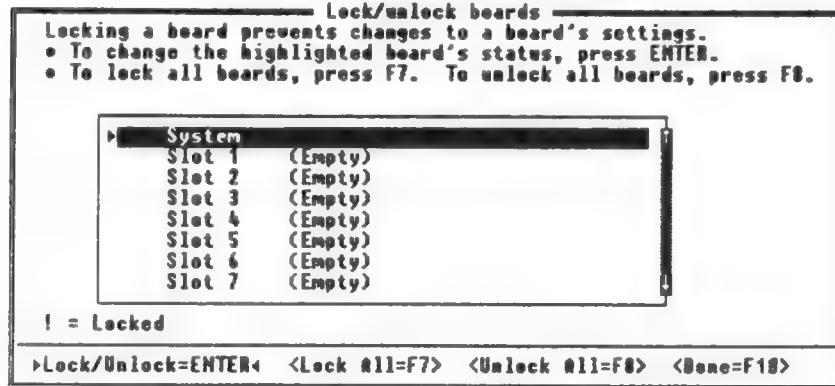
Figure 5-8. Lock/unlock Boards Screen

Highlight the board to be locked and press [**Enter**] to lock the board. (To unlock the board, press [**Enter**] again.) An exclamation point (!) displays in front of the slot, indicating the board is locked. Press [**F10**] to return to the Advanced Menu. Press [**Esc**] to return to the View or Edit Details menu.

View Additional System Information

The manufacturer's specifications, system specifications, system resources used and system resources available can be displayed. Highlight the "**View additional system information menu**" option and press [**Enter**]. The View Additional System Information menu displays.

```
┌─ View additional system information menu ─┐
│                                            │
│   ┌──────────────────────────────────┐    │
│   ▶│ Board specifications             │    │
│   │   System specifications          │    │
│   │   Used resources                 │    │
│   │   Available resources            │    │
│   └──────────────────────────────────┘    │
│                                            │
│ ▶Select=ENTER◀   <Cancel=ESC>             │
└────────────────────────────────────────────┘
```
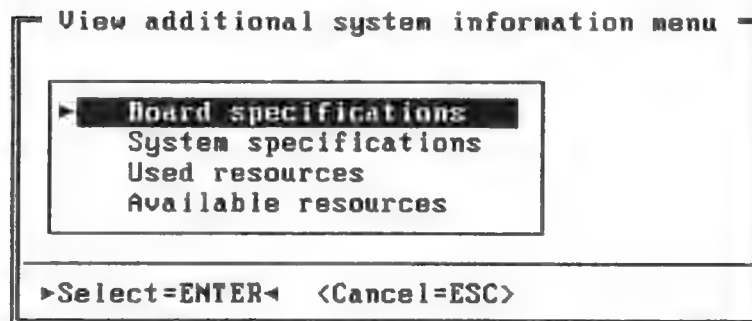
Figure 5-9. View Additional System Information Screen

Select the desired options, press [**Enter**] to display the informa-

tion. After viewing it, press [F10] to return to the View Additional System Information menu. Press [Esc] to return to the Advanced menu. Press [Esc] to return to the View or Edit Details menu.

The options are listed below.

Board specifications displays information about the identification and physical characteristics of the boards.

System specifications displays system statistics and information about the slots, such as slot name and type, board ID, accept skirted, maximum board length, amperage available, system amperage, etc.

Used resources displays information about which boards and functions are using your system resources.

Available resources displays a list of system resources available for assignment to boards.

Set Verification Mode

The system automatically checks for possible configuration conflicts every time a change is made to a configuration, unless the mode is set to manual. In manual mode, resource conflicts are detected, but they are not automatically resolved.

The system defaults to automatic mode. To change to manual mode, highlight the "**Set verification mode menu**" option and press [Enter].

The Set Verification Mode menu displays. Highlight "Manual" and press [Enter]. The Manual Mode Confirmation window appears. Press [Enter] to confirm your selection and return to the Advanced menu. Press [Esc] to return to the View or Edit Details screen.

When the verification mode is set to manual, the Verify [F8] option appears on the options bar at the bottom of the View or Edit Details screen. Press [F8] to manually verity that there are no conflicts. If the system detects a conflict, you must resolve the conflict yourself.

Maintain SCI Files

The System Configuration Information (SCI) files can be loaded or saved to disk using the Maintain SCI Files option. Opening an existing SCI file replaces the current configuration with the configuration stored in the SCI file. To load an SCI file, highlight the "**Maintain SCI files menu**" option and press [Enter]. The Maintain SCI Files Menu displays.

Highlight "**Open**" and press [**Enter**]. Since opening the SCI configuration replaces the current configuration, a Caution window appears. After reading the caution statement, press [**Enter**] to continue.

The Open System Configuration Information (SCI) file list appears. Highlight the file and press [**Enter**]. The View or Edit Details menu displays the open SCI configuration.

To save a configuration as an SCI file, highlight the "**Maintain SCI files menu**" option and press [**Enter**]. The Maintain SCI Files menu displays. Highlight the "**Save as...**" option and press [**Enter**]. The Save System Configuration (SCI) file window appears.

Type the file name in the Enter Filename field and press [**Enter**]. The System Configuration Information (SCI) File Description window displays. Type the file description in the highlighted field and press [**Enter**]. An information window displays to confirm that the configuration has been saved. Press [**Enter**] to continue. Press [**Esc**] to return to the Advanced menu. Press [**Esc**] again to return to the View or Edit Details menu.

Examine Required Switches

When installing a board with a manufacturer-supplied CFG file and that board needs jumpers or switches be physically set, the CFG file contains the setting information by viewing the Examine Required Switches option. To access this feature, highlight the "**Examine required switches**" option and press [**Enter**].

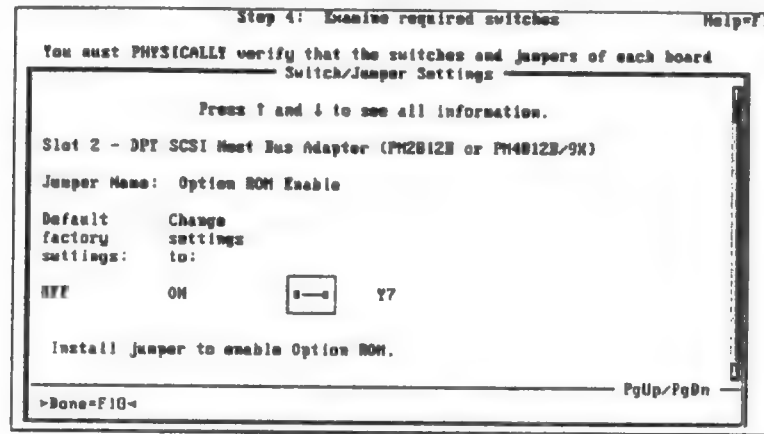The Examine Required Switches menu appears.

Figure 5-10 Examine Required Switches Screen

Boards with an arrow (->) in the left column have jumpers and switches that must be set physically. Highlight the slot and press [Enter]. The Switch/Jumper Settings window displays. Use the [Pg Up] or [Pg Dn] key to scroll through the information. When you have finished reviewing the information, press [F10] to return to the Examine Required Switches screen. Press [F10] again to return to the Steps in Configuring Your Computer screen.

Save and Exit

Save and exit saves the configuration to non-volatile memory and exits the ECU program. If you cancel the changes, you are returned to the System Configuration main menu or the DOS prompt, depending upon where you stated. If you save the configuration, the system copies the configuration to non-volatile memory and reboots the computer.

To save the configuration and exit the Configure Computer program, highlight the "Save and exit" confirmation screen appears.
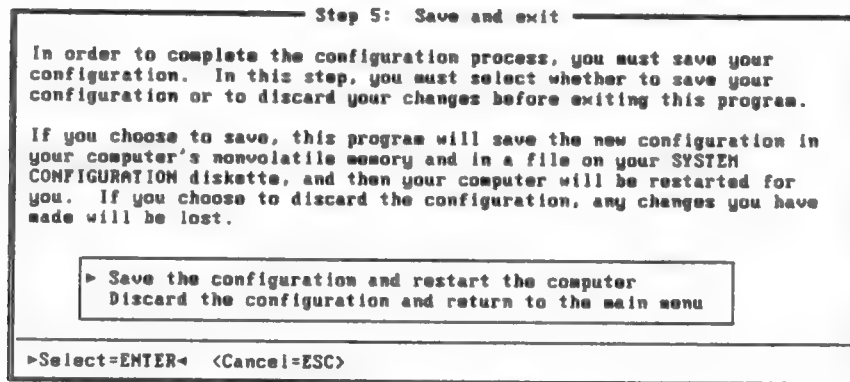
```
================ Step 5:  Save and exit ===============

In order to complete the configuration process, you must save your
configuration.  In this step, you must select whether to save your
configuration or to discard your changes before exiting this program.

If you choose to save, this program will save the new configuration in
your computer's nonvolatile memory and in a file on your SYSTEM
CONFIGURATION diskette, and then your computer will be restarted for
you.  If you choose to discard the configuration, any changes you have
made will be lost.

  ┌──────────────────────────────────────────────────────────────┐
  │ ▶ Save the configuration and restart the computer            │
  │   Discard the configuration and return to the main menu      │
  └──────────────────────────────────────────────────────────────┘

▶Select=ENTER◀  <Cancel=ESC>
```

Figure 5-11. Save and Exit Screen

Highlight the "Save the configuration and restart the com-
puter" option and press [Enter]. The configuration is saved
and the system performs a warm boot.

Set the Date

The date is set through the System Configuration menu. The
date is maintained by an internal battery powered clock on the
system board. To set the date, follow these steps:

1. Highlight the "Set date" option on the Main Menu and
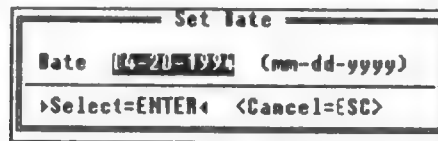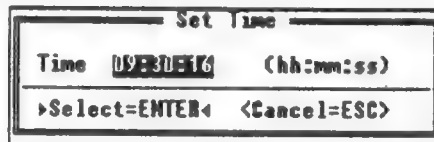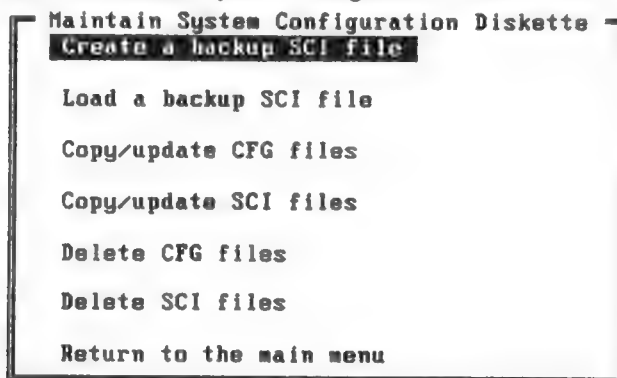   press [Enter]. The Set Date window appears.

```
   ┌──────────── Set Date ────────────┐
   │ Date  [04-20-1992]  (mm-dd-yyyy)  │
   │ ▶Select=ENTER◀   <Cancel=ESC>     │
   └───────────────────────────────────┘
```

Figure 5-12. Set Date Window

2. Type the date in mm-dd-yyyy format. The system automat-
   ically inserts the hyphens as you type.

3. Press [Enter] to save the setting.

Set the Time

The time is set through the System Configuration menu.
The time is maintained by an internal battery powered clock
on the system board. To set the time, follow these steps:

1. Highlight the "Set time" option on the Main Menu and press [Enter]. The Set Time window appears.

```
┌══════════════ Set Time ══════════════┐
│                                       │
│  Time  ████████      (hh:mm:ss)       │
│                                       │
├───────────────────────────────────────┤
│ ▸Select=ENTER◂    <Cancel=ESC>        │
└═══════════════════════════════════════┘
```

Figure 5-13. Set Time Window

2. Type the time in hh:mm:ss format. The system automatically inserts the colons as you type.

3. Press [Enter] to save the setting.

Maintain the System Configuration Diskette

This feature allows you to create, update or delete SCI or CFG files. To access the Maintain System Configuration Diskette screen, highlight the "Maintain system configuration diskette" option on the Main Menu and press [Enter]. The Maintain System Configuration Diskette menu

```
┌─ Maintain System Configuration Diskette ─┐
│ ███████████████████████████████████████  │
│ ███Create a backup SCI file███████████   │
│                                          │
│  Load a backup SCI file                  │
│                                          │
│  Copy/update CFG files                   │
│                                          │
│  Copy/update SCI files                   │
│                                          │
│  Delete CFG files                        │
│                                          │
│  Delete SCI files                        │
│                                          │
│  Return to the main menu                 │
│                                          │
└──────────────────────────────────────────┘
```

displays.

Figure 5-14. Maintain System Configuration Diskette Screen

Create a Backup SCI File

The ECU lets you create a backup copy of the SCI file. To create a backup SCI file, follow these steps:

1. Highlight the **"Create a backup SCI file"** option and press **[Enter]**. The Save System Configuration Information (SCI) File screen displays.

2. Type the name of the configuration file in the Enter Filename field (do not type an extension) and press **[Enter]**. The System Configuration Information (SCI) File Description screen displays.

3. Type a description of the backup file and press **[Enter]**. The Information screen displays.

4. Press **[Enter]** to continue. The Maintain System Configuration Diskette screen appears.

Load an SCI File

The ECU lets you use a previously saved SCI file to configure the computer. To load an SCI file from disk, follow these steps:

1. Highlight the **"Load a backup SCI file"** option and press **[Enter]**. The Open System Configuration Information (SCI) File screen displays.

2. Highlight the SCI file to be loaded and press **[Enter]**. The Save and Exit screen displays.

3. Press **[Enter]** to save the current configuration. The system loads the SCI file into the system's non-volatile memory and reboots the system.

Copy CFG Files

The CFG files can be copied to the subdirectory from where the ECU was started. To copy a CFG file, follow these steps:

1. Highlight the **"Copy/update CFG files"** option and press **[Enter]**. The Copy Configuration (CFG) File screen displays.

2. Press **[F7]**. The Change Directory screen displays.

3. Highlight the subdirectory where the source file resides and press [Enter].

4. Highlight the source file and press [Enter]. The file is copied to the target subdirectory and the Copy Complete window appears.

5. Press [Enter]. The Maintain System Configuration Diskette menu displays.

6. Press [Esc] to return to the Main Menu.

Copy SCI Files

The CFG files can be copied to the subdirectory from where the ECU was started. To copy an SCI file, follow these steps:

1. Highlight the "Copy/update SCI files" option and press [Enter]. The Copy System Configuration Information (SCI) File screen displays.

2. Press [F7]. The Change Directory screen displays.

3. Highlight the subdirectory where the source file resides and press [Enter]. The Copy System Configuration Information (SCI) File screen displays.

4. Highlight the source file and press [Enter]. The file is copied to the target subdirectory and a Copy Complete window appears.

5. Press [Enter]. The Maintain System Configuration Diskette menu displays.

Delete CFG Files

The CFG files can be deleted from any subdirectory. To delete a CFG file, follow these steps:

1. Highlight the "Delete CFG files" option and press [Enter]. The Delete Configuration (CFG) File screen displays.

2. Select the CFG file and press [Enter]. The Delete Confirmation window appears.

3. Press [Enter] to confirm the deletion. The Delete Configuration (CFG) File screen displays.

4. Press [Esc]. The Maintain System Configuration Diskette menu displays.

Delete SCI Files

The SCI files can be deleted from any subdirectory. To delete

an SCI file, follow these steps:

1. Select the "**Delete SCI files**" option, press [**Enter**]. The Delete System Configuration Information File screen displays.

2. Highlight the SCI file and press [**Enter**]. The Delete Confirmation window appears.

3. Press [**Enter**] to confirm the deletion. The Delete System Confirmation Information (SCI) File screen displays.

4. Press [**Esc**]. The Maintain System Configuration Diskette menu displays.

Restore the Configuration from Backup

The option to restore the configuration from the backup SYSTEM. SCI file is displayed if the detected hardware configuration does not match the configuration loaded in the system's non-volatile memory. When you access the Steps in Configuring Your Computer screen, a window opens, offering you the option to copy the system configuration from the SYSTEM.SCI file on the ECU diskette to the system's non-volatile memory.

Complete the following steps to download the system configuration from the diskette to the system:

1. Press any key to display the Welcome screen. Because the configuration did not match, the welcome screen recommends reconfiguring your computer.

2. Press [**Enter**] to display the ECU main menu.

3. Highlight the "Configure computer" option and press [**Enter**]. An option to restore the configuration from a backup file is offered.

4. To restore the configuration from the system configuration diskette, press [**Enter**]. The configuration is loaded into non-volatile memory and the Steps in Configuring Your Computer screen displays.

5. To save the configuration, highlight the "Save and exit" option and press [**Enter**]. The Save and Exit screen displays.

6. The option to save the configuration and restart the computer is highlighted by default. Press [**Enter**] to accept the default. The Reboot screen displays.

7. Pre _____ nter] to
   ss | [d:] [path] CF [/B] [/F] [/H] [/M] [/K] | r e b o o t
   [E   ‾‾‾   the sys-
   tem.

Start the ECU from DOS

When starting the ECU from the DOS prompt, you can bypass the main menu and start at the Steps in Configuring Your Computer screen directly from MS-DOS.

Complete the following steps to access the configuration screen:

1. Type the following command to start this selection from the MS-DOS prompt. Note that items in brackets are optional. (Do not type the brackets.)

where:

d: is the drive which contains the utility files.

path   is the path to the utility files.

/B   is the BIOS video mode which displays all screens using BIOS Int 10h calls and should be used with nonstandard displays. The default mode writes directly to video memory.

/F   is the automatic (Fast) configuration mode. The utility determines the boards and options, and configures the system without offering the user any alternatives. No menus or windows display when this option is used.

/H   is the high-resolution display mode. If you have an EGA monitor, the screen display in 43-line mode. If you have a VGA monitor, the screen displays in 50-line mode. When this parameter is not used, 25 lines display.

/M   is the monochrome display mode. It displays the utility screens in one color on a one-color background, such as white on black.

/K   is the keyboard-only mode. If this parameter is used, the computer will not support a mouse even if one is present. The default is to support a mouse if its driver is loaded.

2. Press [Enter] and the logo screen is presented.

3. Press [Enter] to display the EISA Configuration Utility screen.

4. Press [Enter] again to display the Steps in Configuring Your Computer screen.

SMP Operating Systems

Terminologies

SMP: Symmetric Multi-Processor

In a Symmetric Multi-Processor system, all processors see all system resources (memory, I/Os) the same way (e.g., same memory appears at the same address for each processor). All processors have equal access to all resources. Any processor can handle any interrupt request.

In an Asymmetric Multi-Processor system, each processor may have its own memory that other processors cannot access directly. Some processors are designated to handle I/Os and interrupts.

HAL: Hardware Abstraction Layer for Windows NT

If a computer system is not a standard ISA system, the system vendor needs to provide a HAL driver for Windows NT to run on the system.

Operaing systems that support multiple platforms usually require system vendors to provide system dependent drivers similar to HAL.

MP Spec 1.1: Multi-Processor Specification Ver. 1.1

Intel defined the MP specification for systems based on the Intel's APIC architecture. This is the first industry standard for SMP systems. All major operating systems that support the Intel x86 CPUs already have or will soon have built-in support for this standard. System vendors no longer need to provide HAL drivers if their systems are MP Spec 1.1 compliant.

APIC: Advanced Programmable Interrupt Controller

APIC is the Intel's recommended architecture for SMP systems.

Process: An Executing Program

When a program file is loaded into memory and is executed by CPUs, it is called a process or a task.

Multi-Processing Operaing System

An operating system that loads and executes more than one program simultaneously is called a multi-processing operaing system.

If the system has only one CPU, the CPU can execute only one program at any given time even if the multi-processing OS makes it look to the user as if the CPU is executing multiple programs simultaneously. *Synonym: Multi-Tasking Operaing System.*

Pre-Emptive Multi-Tasking:
Time-Sliced Execution Schedule

The execution time and order of each process is scheduled by the operating system using a time-slicing scheme. That is, each process is allowed to execute for a period of time. When the time expires, the process is temporarily suspended by the operating system until the next time slot for this process arrives.

Non-Preemptive Multi-Tasking:
Good-Guy Protocol Execution Schedule

The current executing process relinguishes the control of CPU to the operating system on its own will.

Protected Mode Operating System

In a non-protected mode operating system, applications can access the system resources directly.

In a protected mode operating system, application programs access system resources via routine calls provided by the operating system.

In a "semi" protected mode operating system, all application process share the same logical memory address space. A faulty process can affect other processes or the operating system.

In a "true" protected mode operating system, each process has its own logical memory address space that is guarded by the CPU's limit registers to prevent other processes from corrupting its data.

Multi-Thread

In a protected mode OS, it is time-consuming to switch CPU execution from one process to another because the OS needs to switch the execution context (such as the memory space associated with each process) when the process is switched.

A process can split its code into multiple execution units. Each unit is called a thread. A thread is sometimes called a lightweight process. A thread is scheduled to execute as if it is an independent process but it uses the execution context of the parent process. In a multi-CPU system, each CPU can execute a process or thread concurrently.

OS that Uses the Second CPU

A protected mode multi-tasking operating system that supports that MP Spec. 1.1 can utilize the second CPU. During the Power-On Self Test, the system BIOS puts the secondary CPU to sleep if it exists. The secondary CPU remains asleep until it is awakened up by an operating system that supports the MP Spec. 1.1. The following table shows the major operating systems and their support for the MP Spec. 1.1:

OS	PROTECTED MODE	MULTI-TASKING	MP 1.1
Windows NT 3.51 Windows NT 3.5	Yes Yes	Premptive Premptive	Yes Yes
OS/2 2 .11 OS/2 2.1	Yes Yes	Premptive Premptive	Yes No
Solaris 2.4 Solaris 2.3	Yes Yes	Premptive Premptive	Yes No
Interactive 4.0	Yes	Premptive	No
SCO Unix 3.2.4 SCO ODT 3.0	Yes Yes	Premptive Premptive	(+) Yes (+) Yes
UnixWare 2.0 UnixWare 1.0	Yes Yes	Premptive Premptive	Yes No
NetWare 4.1 SMP NetWare 4.0X NetWare 3.XX NetWare SFT III 3.11	Yes Yes Yes Yes	Premptive Non-Premptive Non-Premptive Non-Premptive	Yes No No No
Windows 95 WFW 3.11 Windows 3.11	Yes Yes Yes	Premptive Non-Premptive Non-Premptive	No No No
MS DOS 6.X PC DOS 6.X	No No	No No	No No

(*) Operating system has not been released.

(+) SCO UNIX and ODT require additional XMP and APIC drivers.

Table 6-1. OS and Their Support for the MP Spec. 1.1

Upgrade to Dual Processors

Many MP Spec. 1.1 operating systems allow you to install it initially as a uni-processor operating system and later upgrade it to a multi-processor operating system without re-installing the entire operating system.

Some operating systems, such as the Windows NT 3.5 and Solaris 2.4, can be installed with only one processor present in the system, and later run with multiple processors without any

re-installation or re-configuration.

Installing the Windows NT3.1 SMP

To install the Windows NT 3.1 SMP, you need the MP 1.1 HAL driver. If your system is shipped with a system utility diskette, the Windows NT 3.1 HAL driver may be included in the diskette.

You may obtain the Windows NT 3.1 HAL driver from your dealer or the system manufacturer.

1. Install the Windows NT 3.1 as in a regular uni-processor system.

2. Boot up the Windows NT 3.1.

3. Replace the Windows NT 3.1 UP OS Kernel with the MP OS Kernel.

   Select the Command Prompt.
   Switch to the drive that contains the Windows NT 3.1 OS.
   At the DOS prompt, enter the following:

   cd \winnt\system32
   ren ntoskrnl.exe ntoskrnl.up
   expand <CD-ROM>:\i386\ntkrnlmp.ex_ ntoskrnl.exe

   where <CD-ROM> = CD-ROM drive with the Windows NT 3.1 CD.
   e.g.
   EXPAND D:\I386\NTKRNLMP.EX_ NTOSKRNL.EXE

4. Copy the MP HAL.DLL to the Windows NT 3.1 system directory.

   Insert the MP 1.1 HAL driver diskette in drive A:.
   Select the Command Prompt.
   Switch to the drive that contains the Windows NT OS.
   At the DOS prompt, enter the following:

   CD\WINNT\SYSTEM32
   REN HAL.DLL HAL.UP
   COPY A:\WINNT31\MP\HAL.DLL HAL.DLL

5. Shutdown the Windows NT and reboot the system.

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For Pentium Pro 150Mhz :

JP171 (CLOCK RATIO) at X5/2

```
   2 4 6 8    JUMPER
  +-+-+-+-+   1-2   ON
  |o|o|o|o    3-4   ON
  |o|o|o|o    5-6   ON
  +-+-+-+-+   7-8   OFF
 Pin1 3 5 7
```

JP181 and JP182 (VOLTAGE ID)

```
 +--+
 8|oo|7     JUMPER
 +--+       1-2   ON
 6 oo 5     3-4   ON
 +--+       5-6   OFF
 4|oo|3     7-8   ON
 +--+
 2|oo|Pin1
 +--+
```

U177 (CRYSTAL OSC)

ECLIPTEK EC1100 SERIES 60.000Mhz

For Pentium Pro 200Mhz :

JP171 (CLOCK RATIO) at X3

```
   2 4 6 8    JUMPER
  +-+ +-+-+   1-2   ON
  |o|o|o|o|   3-4   OFF
  |o|o|o|o|   5-6   ON
  +-+ +-+-+   7-8   ON
 Pin1 3 5 7
```

JP181 and JP182 (VOLTAGE ID)

```
 +--+
 8|oo|7     JUMPER
 |  |       1-2   OFF
 6|oo|5     3-4   OFF
 |  |       5-6   OFF
 4|oo|3     7-8   OFF
 |  |
 2|oo|Pin1
 +--+
```

U177 (CRYSTAL OSC)

ECLIPTEK EC1100 SERIES 66.666Mhz

JP283 (CLEAR PASSWORD) <Any PENTIUM PRO freq>

```
 +-+       JUMPER                            JUMPER
 |o|3      2-3   ON : NORMAL        o 3      1-2   ON : CLEAR PASSWORD
 | |                               +-+
 |o|2                              |o|2
 +-+                               | |
  o Pin1                           |o|Pin1
                                   +-+
```

Subj: **pentium pro**
Date: 4/21/1998 12:43:55 AM Eastern Daylight Time
From: burmood@txcyber.com (Brad)
To: rhocking@aol.com

Winning Bidder:
Buyer prepays with money order or cashier's check (for next-day
shipping) OR Buyer prepays with check (drawn in U.S. funds - allow 7
business days for check to clear before shipping.) .

Send To:

Brad Burmood
P.O.Box 2288
Bryan Texas 77806

Your Total :$48.00

Include item number & description. With order when mailed

Email me back with your address for my shipping address!

Thanks Brad Burmood

FIC manual download is: ftp://ftp.fic.com.tw/manuals/motherboards/

AOPEN manual download is: http://www.aopen.com.tw/tech/manual/mb.htm

Most motherboard come without cable pack unless noted in the
description.

Read this before installing your new product: http://verinet.com/pc/

ebaY™

Home Listings Buyers Sellers Search Help Cafe Site Map

I have mine. Do you have your User ID?

Grand Opening! Click here for the eBay Store!

DUAL Pentium Pro FIC P0 6200 Motherboard NEW!
Item #11328716

Bidding is closed for this item.

Currently	**$41.00** (reserve met)	First bid	$1.00
Quantity	**1**	# of bids	**3** (bidding history) (include e-mails)
Time left	**Auction has ended.**	Location	**Texas**
Started	04/17/98 16:10:37 PDT	Category	Computers:Hardware:CPUs
Ends	04/20/98 16:10:37 PDT		
✉	(mail this auction to a friend)		

Seller   **make_me_an_offer** (1)
(view seller's feedback) (view seller's other auctions) (ask seller a question)

High bidder   **rhocking@aol.com** (42) ⭐

Relist item   **Seller:** Now that the auction has ended, you can easily relist this item by clicking here.

Seller assumes all responsibility for listing this item. You should contact the seller to resolve any questions before bidding. Currency is U.S. dollars (US$) unless otherwise noted.

Description

FIC P0 6200 Dual Pentium Pro Motherboard

No CPU's Included

Specifications:
1. Accepts up to 2 Pentium Pro processor running from 150mhz - 200mhz
2. Full Size Motherboard - requires a server size case or large Tower case
3. 8 - 72 pin simm slots - requires parity ram
4. Can accomadate from 2mb to 1 GIGABYTE of Simms
5. Onboard Super I/O - 2 ser, 1 par, floppy, EIDE
6. 4 EISA, 4 PCI Slots
7. Dallas real time clock
8. Cable pack
9. Manual - including addendum jumper settings covering all pent pro cpus
10. EISA configuration software
11. Power convertors that plug into the two VRM looking sockets

TERMS By bidding you agree to prepay high bid plus $8.00 shipping and handling (shipping
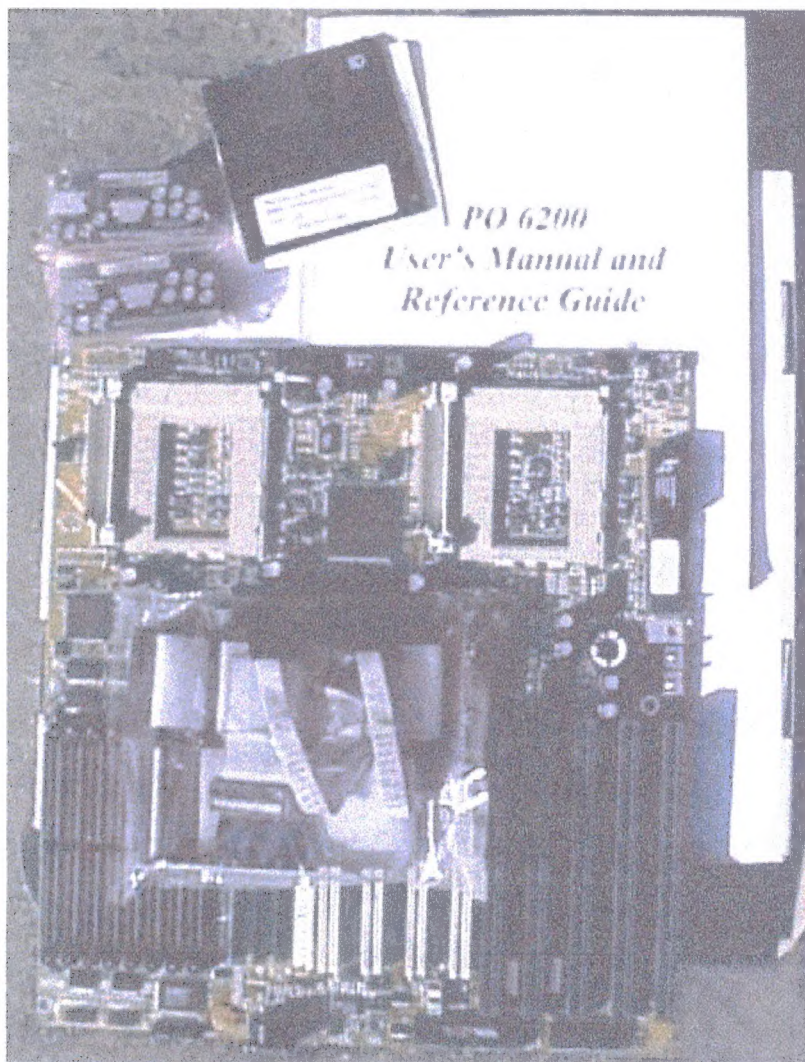
applies only in US 50 states) with a money order.
Board is brand new as stated above. I cannot guarantee compatibility or usability, but will
guarantee merchandise is as stated.
Comes in a retail or white box.
Defective merchandise must be reported within 7 days of receipt. All sales are final.

Good luck and thanks for bidding!

Bidding

Bidding is closed for this item.